

Amendment to the Claims

Please amend claim 3 as follows:

1. (Cancelled)
2. (Previously presented) A method for packaging a microelectronic substrate, comprising:
  - disposing an encapsulating material in direct contact with a surface of the microelectronic substrate; and
  - exposing at least a portion of the surface of the microelectronic substrate by removing a portion of the encapsulating material in direct contact with the surface of the microelectronic substrate with the microelectronic substrate in an operable condition after the portion of the encapsulating material is removed;
  - wherein removing a portion of the encapsulating material includes directing laser radiation toward the encapsulating material;
  - wherein the microelectronic substrate has a first surface and a second surface facing opposite the first surface, the first surface having a plurality of bond sites for electrical connections to the microelectronic substrate; and
  - wherein exposing a portion of a surface of the microelectronic substrate includes exposing a portion of the second surface of the microelectronic substrate.
3. (Currently amended) A method for packaging a microelectronic substrate, comprising:
  - ~~disposing an encapsulating material in direct contact with a surface of the microelectronic substrate;~~
  - ~~exposing at least a portion of the surface of the microelectronic substrate by removing a portion of the encapsulating material in direct contact with the surface of the microelectronic substrate with the microelectronic substrate in an operable condition after the portion of the encapsulating material is~~

~~removed, wherein removing a portion of the encapsulating material includes directing laser radiation toward the encapsulating material;~~  
mounting ~~the~~ a microelectronic substrate to a support member with a first surface of the microelectronic substrate facing the support member and a second surface of the microelectronic substrate facing away from the support member;  
electrically coupling the microelectronic substrate to the support member;  
disposing ~~the~~ an encapsulating material adjacent to both the microelectronic substrate and the support member; and  
exposing at least a portion of the second surface of the microelectronic substrate by directing laser radiation toward the portion of the encapsulating material in direct contact with the second surface to ablate the portion of the encapsulating material.

4. (Previously presented) The method of claim 7, further comprising:  
selecting the microelectronic substrate to include a memory chip;  
mounting the microelectronic substrate to a printed circuit board; and  
disposing the encapsulating material adjacent to both the printed circuit board and the microelectronic substrate.

5. (Previously presented) The method of claim 7, further comprising transferring heat directly away from the exposed portion of the surface of the microelectronic substrate.

6. (Previously presented) The method of claim 7, further comprising convectively transferring heat directly away from the exposed portion of the surface of the microelectronic substrate.

7. (Previously presented) A method for packaging a microelectronic substrate, comprising:  
molding an encapsulating material onto the microelectronic substrate; and

exposing at least a portion of a surface of the microelectronic substrate by removing a portion of the encapsulating material with the microelectronic substrate in an operable condition after the portion of the encapsulating material is removed;

wherein removing a portion of the encapsulating material includes directing laser radiation toward the encapsulating material.

8. (Previously presented) The method of claim 7 wherein removing the portion of the encapsulating material includes directing a laser beam having a power of from about 4 watts to about 25 watts toward the encapsulating material.

9. (Previously presented) The method of claim 7 wherein removing the portion of the encapsulating material includes sequentially removing layers of the portion of the encapsulating material by sequentially exposing the layers of encapsulating material to laser radiation.

10-31. (Cancelled)

32. (Previously presented) A method for packaging a microelectronic substrate, comprising:

mounting the microelectronic substrate to a support member with a first surface of the microelectronic substrate facing the support member and a second surface of the microelectronic substrate facing opposite the first surface;

electrically coupling the microelectronic substrate to the support member by passing wire bonds through an aperture in the support member and connecting one end of each wire bond to the support member and an opposite end of each wire bond to the microelectronic substrate;

encapsulating the microelectronic substrate and at least a portion of the support member by disposing an encapsulating material over the support member and the second surface of the microelectronic substrate; and

directing a source of laser radiation toward the second surface of the microelectronic substrate to remove at least a portion of the encapsulating material adjacent to the second surface and expose the second surface.

33. (Original) The method of claim 32, further comprising forming a heat transfer feature in the encapsulating material by removing a portion of the encapsulating material to define an exposed external surface of the heat transfer feature.

34. (Original) The method of claim 32 wherein directing the source of laser radiation includes directing a laser beam having a power of from about 4 watts to about 25 watts.

35. (Original) The method of claim 32 wherein directing the source of laser radiation includes engaging a laser beam with the encapsulating material to remove a first portion of the encapsulating material and engaging the laser beam with the encapsulating material again to remove a second portion of the encapsulating material initially covered by the first portion of the encapsulating material.

36. (Original) The method of claim 32 wherein removing a portion of the encapsulating material includes removing a layer of encapsulating material having a thickness of greater than about 0.003 inch.

37-63. (Cancelled)

64. (Previously presented) A method for packaging a microelectronic substrate, the method comprising:

mounting the microelectronic substrate to a dielectric support member with a first surface of the microelectronic substrate facing the dielectric support member and a second surface of the microelectronic substrate facing opposite the first surface;

electrically coupling the microelectronic substrate to the dielectric support member by passing wire bonds through an aperture in the support member and connecting one end of the individual wire bonds to the support member and an opposite end of the individual wire bonds to the microelectronic substrate;

disposing an encapsulating material over the second surface of the microelectronic substrate and at least a portion of the support member;

and

exposing at least a portion of the second surface of the microelectronic substrate by removing a portion of the encapsulating material adjacent to the second surface.

65. (Previously presented) A method for packaging a microelectronic substrate, the method comprising:

mounting the microelectronic substrate to a surface of a support member with a first surface of the microelectronic substrate facing the surface of the support member and a second surface of the microelectronic substrate facing away from the support member;

electrically coupling the microelectronic substrate to the support member by passing wire bonds through an aperture in the support member and connecting one end of the individual wire bonds to the support member and an opposite end of the individual wire bonds to the microelectronic substrate;

disposing an encapsulating material over the second surface of the microelectronic substrate and at least a portion of the support member such that a first portion of the encapsulating material projects from the surface of the support member; and

exposing at least a portion of the second surface of the microelectronic substrate by removing a second portion of the encapsulating material adjacent to the second surface.

66. (Previously presented) The method of claim 64 wherein exposing at least a portion of the second surface comprises directing a laser beam toward the portion of the encapsulating material.

67. (Previously presented) The method of claim 66 wherein directing the laser beam comprises directing a laser beam having a power of from about 4 watts to about 25 watts.

68. (Previously presented) The method of claim 66 wherein directing the laser beam comprises engaging the laser beam with the encapsulating material to remove a first section of the encapsulating material and engaging the laser beam with the encapsulating material again to remove a second section of the encapsulating material initially covered by the first section of the encapsulating material.

69. (Previously presented) The method of claim 64 wherein removing the portion of the encapsulating material comprises removing a layer of encapsulating material having a thickness of greater than about 0.003 inch.

70. (Previously presented) The method of claim 64 wherein removing the portion of the encapsulating material comprises forming a heat transfer feature in the encapsulating material.

71. (Previously presented) The method of claim 65 wherein exposing at least a portion of the second surface comprises directing a laser beam toward the second portion of the encapsulating material.

72. (Previously presented) The method of claim 71 wherein directing the laser beam comprises directing a laser beam having a power of from about 4 watts to about 25 watts.

73. (Previously presented) The method of claim 71 wherein directing the laser beam comprises engaging the laser beam with the encapsulating material to remove a first section of the encapsulating material and engaging the laser beam with the encapsulating material again to remove a second section of the encapsulating material initially covered by the first section of the encapsulating material.

74. (Previously presented) The method of claim 65 wherein removing the second portion of the encapsulating material comprises removing a layer of encapsulating material having a thickness of greater than about 0.003 inch.

75. (Previously presented) The method of claim 65 wherein removing the second portion of the encapsulating material comprises forming a heat transfer feature in the encapsulating material.

76. (Previously presented) A method for packaging a microelectronic substrate, comprising:

molding an encapsulating material in direct contact with the microelectronic substrate; and

forming a heat transfer structure in an external surface of the encapsulating material by removing at least a portion of the encapsulating material to define at least one exposed heat transfer surface of the heat transfer structure.

77. (Previously presented) The method of claim 76 wherein removing at least a portion of the encapsulating material includes removing a portion of the encapsulating material by directing laser radiation toward the encapsulating material.

78. (Previously presented) The method of claim 76 wherein the microelectronic substrate has a first surface and a second surface facing opposite the first surface, the first surface having a plurality of bond sites for electrical connections to the microelectronic substrate, and further wherein removing at least a portion of the

encapsulating material includes removing a portion of the encapsulating material in direct contact with the second surface of the microelectronic substrate.

79. (Previously presented) The method of claim 76, further comprising:  
mounting the microelectronic substrate to a support member;  
electrically coupling the microelectronic substrate to the support member;  
disposing the encapsulating material adjacent to both the microelectronic substrate and the support member; and  
removing at least a portion of the encapsulating material from a region proximate to the microelectronic substrate.

80. (Previously presented) The method of claim 76 wherein removing the encapsulating material includes removing a portion of the encapsulating material to expose a portion of a surface of the microelectronic substrate initially covered by the encapsulating material.

81. (Previously presented) The method of claim 76 wherein forming a heat transfer structure includes forming a cylindrical rod of encapsulating material projecting away from the microelectronic substrate.

82. (Previously presented) The method of claim 76 wherein forming a heat transfer structure includes forming a rib projecting away from the microelectronic substrate.